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Problems in the Modern Theory (Cont.)

SOV/3369

Lomsadze, Yu.M. The 1-Summation of the Perturbation
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182

Lomsadze, Yu.M., V.I. Lend'yel, and I.Yu. Krivskiy. The
Problem of Nucleon-Nucleon Scattering in High-Energy Regions

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Lomsadze, Yu.M., V.I. Lend'yel, I.Yu. Krivskiy,
V.I. Fushchich, I.V. Khimich, L.P. Lukin, and B.M. Ernst.
The Application of the Modified Perturbation Method to the
Interpretation of the Nucleon-Nucleon Scatterings

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AVAILABLE: Library of Congress

Card 6/6

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3-21-60

24(5)

AUTHORS:

Brodskiy, A. M., Ivanenko, D. D.

SOV/56-36-4-46/70

TITLE:

Anomalous Spinors and Bosons (Anomal'nyye spinory i bozony)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
Vol 36, Nr 4, pp 1279-1285 (USSR)

ABSTRACT:

The discovery of the isotopic and strange properties of particles and of the nonconservation of parity in the case of weak interaction stimulated a more intense investigation of the properties of spinors and bosons in reversals. As, however, the usual representations of the Lorentz group do not suffice for the purpose of describing the variety of the new particle properties, the (3- or 4-dimensional) iso-space theory was developed (Ref 1). This also showed that additional consideration of previously neglected possibilities of projective representations in the spinor- and "integron" theory (particles with integral spin) offers the possibility of being able to describe iso-spin and strangeness already within the framework of the ordinary space. These problems are of interest for the application of the fusion method, the model of the complex particles, and also in connection with the nonlinear theory of matter. The authors here give an analysis of the

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Anomalous Spinors and Bosons

SOV/56-36-4-46/70

new spinor types, they discuss the problems of the unusual bilinear combinations, and problems of spin and statistics. The anomalous commutation relations, to which these spinors which show an unusual behavior with respect to inversions obey, are investigated (cf. Gel'fand and Tsetlin, Ref 7). Finally, the possibility is investigated, by means of spinors of the class $\psi^{1A1A} = \psi^e$ to describe the electron-positron, by means of the self-adjoint spinors $\psi^{1C1C} = \psi_\nu$ (zero mass) the neutrino, and by means of the spinors $\psi^{2A2A} = \psi_\mu$ - the μ -meson. The authors finally thank G. A. Sokolik for discussing the results. There are 12 references, 9 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: November 5, 1958

Card 2/2

AUTHORS: Brodskiy, A. M., Ivanenko, D. D. SOV/56-37-3-53/62

TITLE: On the Connection of the Isospin and the Strangeness With the Behavior of Spinors in Inversion

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 3(9), pp 876-877 (USSR)

ABSTRACT: The usual treatment of the isotopic properties and strangeness properties is connected with an isospace of 2, 3, and 4 dimensions, with transitions into the pseudoeuclidian space being possible. These properties may also be described within the usual space, however, by using the hitherto not used possibility of a different behavior of the spinors in inversions and under consideration of the non-conservation of parity P. The treatment of isotopic properties within the usual space suggested here extends the more special considerations made already earlier. As is known, spinors may behave differently towards one another in space and time reflections. In this case, the matrices of transformations differ by the factors -1 , i , γ_5 or by their products. Thus, spinor representations of the Lorentz group are given which differ from one another and part of which is unitarily equivalent (which is different

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On the Connection of the Isospin and the Strangeness SOV/56-37-3-53/62
With the Behavior of Spinors in Inversion

in the case of charge conjugation). A considerable difference between the spinors (which has not the character of a unitary equivalence) occurs in the presence of the afore-mentioned additional factors only in the case of purely space- or purely time reflections. The spinors are characterized here by the two index pairs a, b and α, β . Index a assumes the value 1 or 2, depending on whether the additional factor γ_5 is added or not in space reflection. In similar way, index $b = 1, 2$ characterizes the geometric time reflection T^0 , which may be replaced by Schwinger's transformation $T^S = T^0 \times (\sim) = TC$, where $(\sim)$ denotes the transposition in Hilbert's space and T Wigner's inversion. Indices α, β assume the 4 values (0, 1, 2, 3) correspondingly to the occurrence of the additional factors i^α in space-, and i^β in time inversions. The essential difference of the spinors is characterized by the differences $(a - b)$ and $(\alpha - \beta)$, more exactly by the moduli of these differences.

In the invariance only with respect to P^S and T^S the problem of the mutually different spinors arises. In order to solve it,

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With the Behavior of Spinors in Inversion

the self-conjugate ("large") spinors are introduced.

$$\Psi(1) = 1/2 [(1 + i\gamma_5) \psi + (1 - i\gamma_5) \psi^c],$$

$$\Psi(2) = 1/2 [(1 - i\gamma_5) \psi + (1 + i\gamma_5) \psi^c],$$

$$\Psi^c(1,2) = C \Psi^*(1,2) = \Psi(1,2) \cdot \gamma_5^2 = -1$$

In strong inversions of small ψ the quantities $\Psi(1,2)$ transform linearly and separately. In the phase transformation

$\psi' = e^{i\alpha} \psi$ it holds that $\Psi(1,2) = \exp(\pm i\gamma_5 \alpha) \Psi(1,2)$. In the

case of self-conjugate small ψ (neutrino) $\Psi(1)$ and $\Psi(2)$ agree with each other. To characterize the behavior of spinors

in strong inversions P^S, T^S , the index pairs $J = a + \alpha$, $K = b + \beta$ are sufficient and correspondingly also the difference $N = J - K = (a - b) + (\alpha - \beta) \pmod{2}$. In this connection a, b, α, β refer to the initial small spinors ψ . The Lagrangian of the interaction is constructed by means of $\Psi(1,2)$ because

in this case the invariance with respect to P^S and T^S becomes

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manifest. The best way is to characterize the leptons by
"normal spinors" (by attributing the various factors $\pm 1, i, \gamma_5$
to the particles e, ν, μ) and the baryons by spinors which
are mixed in strong inversions. There are 11 references,
6 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State
University)

SUBMITTED: June 10, 1959

Card 4/4

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9,6000 (and 1160, 1161)

S/058/60/000/010/012/014
A001/A001

Translation from: Referativnyy zhurnal, Fizika, 1960, No. 10, p. 342, # 27620

AUTHORS: Zorin, D.I., Brodskiy, A.M.

TITLE: A Bridge for Measuring Small Capacitances at Radio Frequency

PERIODICAL: Tr. Vses. n.-1. in-ta metrol., 1959, No. 38 (98), pp. 40-44

TEXT: The authors present the theoretical calculations, design description, schematic diagram and photographs of a bridge for measuring small capacitances of the MME-1 type. The range of measurements runs from 0.002 to 1,000 picofarad at the loss angle ($\text{tg } \delta_x$) not exceeding 0.05 radian and a frequency of 1 Mc; for $\text{tg } \delta_x$ ranging from 0.001 to 0.05 radian, capacitances from 1 to 1,000 picofarad. The relative error of the bridge in measuring capacitance C does not exceed $\pm (0.2 + 2a/C + bC)\%$, where a is the factor of the ratio of bridge arms (0.1; 1; 10), $b = 0.001$ at $a = 10$ and is equal to zero for the other two a -values. The error in measuring $\text{tg } \delta_x$ at the 1-Mc frequency does not exceed $\pm (2 + 0.1/\text{tg } \delta_x)\%$ at $C \geq 10$ a picofarad. Measures taken for reducing the effect of parasitic losses are described.

B.Z. Kats

Translator's note: This is the full translation of the original Russian abstract.
Card 1/1

TEODOROVICH, E.V. [translator]; KHIMENKOV, Yu.V. [translator]; BRODSKIY, A.M., red.; LARIN, S.I., red.; POTAPENKOV, Ye.V., tekhn.red.

[New method in the theory of strong interactions; double dispersion representations] Novyi metod v teorii sil'nykh vzaimodeistvii; dvoynye dispersionnyye predstavleniia. Sbornik statei. Moskva, Izd-vo inostr.lit-ry, 1960. 358 p. Translated from the English. (MIRA 14:4)
(Nuclear reactions)

83181

S/056/60/039/002/018/044

B006/B056

24,4500

AUTHOR: Brodskiy, A. M.

TITLE: The Effect of Weak Interactions Upon the Electromagnetic Properties of Fermions ¹⁹

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 2(8), pp. 322-325

TEXT: The author carries out a theoretical investigation of such electromagnetic properties of fermions as are due to universal Fermi interaction, taking the terms of first order in e and G into account. The corresponding effects may, in principle, be proved in scattering experiments, thus serving the purpose of verifying the existence of a universal interaction. The author investigates the two terms in the Fermi interaction Lagrangian, the particular significance of which has already been pointed out by Ya. B. Zel'dovich: 1) The term of the local Fermi interaction of the nucleons $[p, n]^2 = \bar{p}\gamma_\mu(1 + \gamma_5)n \cdot \bar{n}\gamma_\mu(1 + \gamma_5)p$ (a generalization for other fermions is easily possible); the author confines himself to a phenomenological consideration of the effects produced by the renormalization of

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The Effect of Weak Interactions Upon the
Electromagnetic Properties of Fermions

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B006/B056

the pseudo-vectorial current, which are due to strong interaction. 2) The term $[\psi, \mu]^2 = \bar{\psi} \gamma_\mu (1 + \gamma_5) \mu \cdot \mu \gamma_\mu (1 + \gamma_5) \psi$. The interaction Lagrangian (1) is transformed by a method given by Firz (Ref. 2), and the correction to the field mass operator $\Delta M(x, x')$ is determined. For a neutron, the correction for interaction to the mass operator $\Delta M^n(x, x')$ with (6) is explicitly given. It is found that, in the case of weak interaction, the field mass is equal for particles of different "chirality", which means that the parity of free particles is conserved. Violation of parity in weak interactions does not induce any violation of parity in the field mass. The case of an external electromagnetic alternating field is then investigated. The author gives an expression that describes the effect of weak interactions on the electromagnetic properties of fermions. This expression is proportional to the external current, and is $\sim 10^{-2}$ times smaller than the similar expression obtained by taking the vacuum terms in electrodynamics into account. The author thanks D. D. Ivanenko for his interest in this investigation and Ya. B. Zel'dovich for discussions. Zel'dovich and A. M. Perelomov obtained the same results by employing another mathematical method. There are 4 references: 2 Soviet, 1 US, and 1 German.

SUBMITTED: February 1, 1960

Card 2/2

BRODSKIY, A.M.; GUBAR', Yu.I.

Green's functions in the nonlinear field theory. Izv.vys.ucheb.
zav.; fiz. no.4:71-78 '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Potentials, Theory of) (Field theory)

BRODSKIY, A.M.; IVANENKO, D.; SOKOLIK, G.A.

New interpretation of the gravitational field. Zhur. eksp. i teor.
fiz. 41 no.4:1307-1309 0 '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet.
(Gravitation)

BRODSKIY, A. M., IVANENKO, D. D. and SOKOLIK, ^G A.

"A New Conception of the Gravitational Field"

report presented at the Intl. Conference on Relativistic Theories of
Gravitation, Warsaw, Poland, 25-31 July 1962

Faculty of Physics, Moscow State University, Moscow, USSR.

BRODSKIY, A.M.; ZVONOV, N.V.; LAVROVSKIY, K.P.; TITOV, V.B.

Radiation thermal conversions of petroleum fractions.
Neftekhimia 1 no.3:370-381 My-Je '61. (MIRA 16:11)

L 36732-65 EHG(j)/EWT(l)/EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/ENG(m)/EPR/EWP(j)/
T/EWP(t)/EWP(b)/EWA(h)/EWA(l) Pc-l/Pr-l/Ps-l/Peb/Pu-l DJ/S/RM

ACCESSION NR: AT5007896

S/0000/64/000/000/0016/0030

AUTHOR: Aleksenko, Yu. N.; Brodskiy, A. M.; Layrovskiy, K. P.; Khranchenkov, V. A.

TITLE: Investigation of organic heat-transfer agents and moderators based on completely hydrogenated terphenyls

SOURCE: Moscow. Institut atomnoy energii. Issledovaniya po primeneniyu organicheskikh teplonositeley-zamedliteley v energeticheskikh reaktorakh (Research on the use of organic heat-transfer agents and moderators in power reactors). Moscow, Atomizdat, 1964, 16-30

TOPIC TAGS: organic cooled reactor, power reactor, reactor coolant, thermal reactor, radiation polymerization, heat transfer agent, moderator, hydrogenated terphenyl, biphenyl

ABSTRACT: This article presents a method for preparing heat-transfer agents, the results of investigations on their behavior in the process of radiothermal conversions in ampoule tests and in a circulating reactor, as well as the changes in thermophysical and physico-chemical properties of these compounds. The incompletely hydrogenated terphenyls (HTP) were obtained by fractional crystallization of different bottoms at 400 - 420C, from which 6% biphenyl, 8 - 10% orthoterphenyl, 24% metaterphenyl and 24% paraterphenyl were obtained. Investigations of the

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radiothermal stability of HTP were carried out in three directions: 1) investigations of the thermal stability in the absence of radiation; 2) investigations of radiation stability at different temperatures under conditions of ampoule irradiation; 3) investigations of radiothermal stability under working conditions for a loop experiment on a reactor. These tests were conducted in stainless-steel ampoules in an atmosphere of technical nitrogen and lasted for 200 hrs. Measurements were also made of the content of the high-boiling product, kinematic viscosity of the specimen, and the molecular weight of the high-boiling product. The authors show that radiolysis of HTP at 350 - 380°C leads to the formation of gaseous, high-boiling and low-boiling products. In addition, the composition of the products forming during radiolysis at 350 - 370°C indicates flow in the latter along with the reactions of condensation, dehydrogenation and cracking. It is also pointed out that there was no formation or precipitation in the form of particles or films of any insoluble products. Orig. art. has: 4 tables and 17 figures.

ASSOCIATION: Institut atomnoy energii, Moscow (Institut of Atomic Energy)

SUBMITTED: 01Aug64

ENCL: 00

SUB CODE: NP, OC

NO REF SOV: 002

OTHER: C00

Card 2/2 *do*

L 36733-65 EWG(j)/EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EWG(m)/EPR/EWP(j)/
T/EWP(t)/EWP(b)/EWA(h)/EWA(l) Pc-l/Pr-l/Pe-l/Pe-l/Pv-l DJ/GS/RM

ACCESSION NR: AT5007897

S/0000/64/000/000/0031/0046

AUTHOR: Brodskiy, A. M.; Lavrovskiy, K. P.; Zvonov, N. V.

TITLE: Investigation of the possibilities of using petroleum gas-oil fractions as heat-transfer agents for nuclear reactors

SOURCE: Moscow, Institut atomnoy energii. Issledovaniya po primeneniyu organicheskikh teplonositeley-zamedliteley v energeticheskikh reaktorakh (research on the use of organic heat-transfer agents and moderators in power reactors). Moscow, Atomizdat, 1964, 31-46

TOPIC TAGS: radiation polymerization, organic-cooled reactor, reactor coolant, thermal reactor, gas oil, petroleum refining, heat transfer agent, pyrolysis

ABSTRACT: The basic results of loop investigations and investigations in ampoules of the radiothermal conversions of a gas-oil fraction are presented. The raw material was a specially prepared gas oil from a non-sulfurous petroleum having a naphthene-aromatic base. In the experiments, both the purely thermal and radio-thermal resistance of a gas oil were investigated in stainless-steel ampoules in an atmosphere of technical nitrogen. The results of measurements obtained from the pyrolytic tests show that the gas oil is completely stable at 200 - 250C. At
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ACCESSION NR: AT5007897

300 - 370C, destructive processes set in leading to the formation of low-boiling products. At 420C, a very rapid build-up of high-boiling products is detected. It is shown that with an increase in the total radiation dose the hydrogen concentration decreases and the content of heavier hydrocarbons increases during radiolysis. Considerable attention was given to studying the chemical reactions occurring directly in liquid fractions under the influence of radiation from a nuclear reactor at a total dose of 600 Mrad. The formation of light-boiling radiolysis products was studied as a function of the build-up of fractions boiling at up to 150C and from 150 to 200C. The authors conclude with a discussion of the formation of radiation-induced polymers at 300C. It is shown that the examined gas-oil fraction can be used in nuclear reactors up to 330C. "The authors express their appreciation to A. N. Mezentshev, V. B. Titov, and Yu. L. Fish." Orig. art. has: 8 tables and 13 figures.

ASSOCIATION: Institut atomnoy energii, Moscow (Institute of Atomic Energy)

SUBMITTED: 01Aug64

ENCL: 00

SUB CODE: NP, FP, OC

NO REF SOV: 005

OTHER: 000

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L 36729 65 EPT(a)/EPT(b)-2/EPR/EPG(J)/EPA(b)-2/EWA(h)/EWI(i)/EWI(m)/EWP(J)/EWI(m)/
EWP(b)/T/EWA(1)/EWP(i) PC-h/Pr-h/PS-h/Pu-h/PeB RM/DJ/GS EWO(m)/

ACCESSION NR: AT5007899

S/0000/64/000/000/0056/0062

AUTHOR: Brodskiy, A. M.; Lavrovskiy, K. P.; Makarov, D. V.; Fish, Yu. L.;

Zvonov, N. V.

TITLE: The regeneration of organic heat-transfer agents by hydrogenation

SOURCE: Moscow. Institut atomnoy energii. Issledovaniya po primeneniyu organicheskikh teplonositeley-zamedliteley v energeticheskikh reaktorakh (Research on the use of organic heat-transfer agents and moderators in power reactors). Moscow, Atomizdat, 1964, 56-62

TOPIC TAGS: organic reactor coolant, thermal reactor, power reactor, radiation polymerization, heat transfer agent, coolant regeneration, coolant hydrogenation, catalytic hydrogenation

ABSTRACT: The results of model tests on the use of gas-oil and hydroterphenyl as heat-transfer agents are presented. The regeneration of the heat-transfer agents was carried out under conditions of hydrocracking on an Al-Co-Mo catalyst under a hydrogen pressure of 40 - 60 atm. at a temperature of 300 - 350C in the reactor. The changes in the content of polymers and unsaturated compounds as a function of the dose of absorbed energy were determined during radiolysis of the gas-oil

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ACCESSION NR: AT5007899

fraction. It is shown that regeneration by hydrogenation enables one to maintain the prescribed amount of polymers and unsaturated compounds in the working heat-transfer agent within wide limits. It is also shown that the unsaturated compounds are completely eliminated during the process of regeneration and that the concentration of the products of radiation polymerization is greatly reduced. The authors conclude that the material balance during the regeneration of hydrogenated terphenyls does not differ from the balance during regeneration of a gas-oil with respect to either hydrogen consumption or the yield of end products. Orig. art. has: 4 tables and 3 figures.

ASSOCIATION: Institut atomnoy energii, Moscow (Institute of Atomic Energy)

SUBMITTED: 01Aug64

ENCL: 00

SUB CODE: TD,OC,NF

NO REF SOV: 000

OTHER: 000

Card 2/2

1 36132-65 EPP(c)/EPR/ENP(3)/ENT(m) Pc-4/Pr-4/Ps-4 RPL RM/WM

ACCESSION NR: AP5010561

UR/0204/64/004/005/0691/0699

33
31
B

AUTHOR: Yampol'skiy, Yu. P.; Brodskiy, A. M.; Kalinenko, R. A.; Lavrovskiy, K. P.

TITLE: Transformations of ethylene at high temperatures

SOURCE: Neftekhimiya, v. 4, no. 5, 1964, 691-699

TOPIC TAGS: ethylene, high temperature phenomenon, reaction mechanism, chemical kinetics

Abstract: The kinetics and mechanism of the thermal transformations of ethylene were investigated in a turbulent reactor within the temperature range 800-1100°C at a pressure of 100 mm of mercury, i.e., under conditions at which decomposition reactions begin to predominate, while the polymerization reactions still take place at an appreciable rate. Kinetic curves were obtained for the accumulation of the basic reaction products: hydrogen, methane, acetylene, butadiene-1, 3, benzene, and coke. Ethane, propylene, allene, methylacetylene, isomeric butenes, vinylacetylene and cyclopentadiene, traces of cyclohexene, toluene, and styrene were also detected among the reaction products. Butadiene-1,3 was found according to a second-order reaction from C_2H_4 , with an activation energy of 63 ± 5 kcal/mole, and rapidly entered into further transformations. The apparent activation energy of coke formation was 38 ± 5 kcal/mole.

The authors express their gratitude to O. M. Knipovich for the assistance in

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L 36482-65

ACCESSION NR: AP5010561

2

carrying out the experiments, and to N. Ya. Chernyak for the assistance in the identification of vinyl-acetylene and cyclopentadiene by the method of mass-spectroscopy. Orig. art. has: 1 figure, 8 formulas, 5 graphs, 4 tables.

ASSOCIATION: Institut neftekhimicheskogo sinteza im. A. V. Topchiyeva, AN SSSR
(Institute of Petrochemical Synthesis, AN SSSR)

SUBMITTED: 12Mar64

ENCL: 00

SUB CODE: OC, GC

NO REF SOV: 005

OTHER: 012

JPRS

Card 2/2

27c
L 24212-65 EWT(m)/EPF(c)/EPF(n)-2/EPR Pr-4/Ps-4/Pu-4 DM

ACCESSION NR: AP5001265

13 S/0089/64/017/006/0439/0448

AUTHOR: Polushkin, K. K.; Yemel'yanov, I. Ya.; Delens, P. A.; Zvonov, N. V.;
Aleksenko, Yu. I.; Grozlov, I. I.; Kuznetsov, S. P.; Sirotkin, A. P.; Tokarev,
Yu. I.; Lavrovskiy, K. P.; Brodskiy, A. M.; Belov, A. R.; Borisyuk, Ye. V.;
Gryazev, V. M.; Tetyukov, V. D.; Popov, D. N.; Koryakin, Yu. I.; Filippov,
A. G.; Petrochuk, K. V.; Khoroshavin, V. D.; Savinov, N. P.; Mashcharyakov,
M. N.; Pushkarev, V. P.; Surovagin, V. A.; Gavrilov, P. A.; Podlazar, L. N.;
Rogozhkin, I. N.

TITLE: Atomic electric power installation "Arbus"¹⁹ with organic coolant and moderator

SOURCE: Atomnaya energiya, v. 17, no. 6, 1964, 439-448

TOPIC TAGS: small nuclear reactor, organic coolant, organic moderator, reactor economy, nuclear reactor

ABSTRACT: The paper is a summary of the SSSR # 307 report at the Third Inter-

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L 24212-65

ACCESSION NR: AP5001265

national Conference on Peaceful Uses of Atomic Energy, 1964. It describes an installation of a reactor in which organic liquid serves as the coolant, and as the moderator. The low-power reactors of about 5 Mw are expected to be economical in the remote regions where the usual energy sources are not available. A regeneration system is described for the coolant which removes the products of radio-lysis. Orig. art. has: 7 figures

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: NP

NR REF SOV: 000

OTHER: 000

Card 2/2

L 34473-65 EWG(j)/EWT(m)/SPF(c)/EPF(n)-2/EWP(j)/T/EJA(h)/EJA(l) Ec-4/Pr-4.
 Pu-4/Te-4 RIL 33/RE
 ACCESSION NO. 135001080

AUTHOR: Brodskiy, A. M., Layrovskiy, K. P., Titov, Y. B., ~~Eq 144~~, A. 15.

TITLE: Radiation-thermal conversion of normal alkanes

SOURCE: AN SSSR. Doklady, v. 159, no. 6, 1964, 1319-1322

TOPIC TAGS: normal alkane, thermal radiolysis, radiation thermal conversion, material balance, normal tetratriacontane, ion reaction, ion radical reaction

ABSTRACT: The radiation-thermal conversion of n-tetratriacontane was studied with the tests run in the channel of a water-water type reactor at temperatures from 150-350°C at integral doses of 6×10^{21} ion/g. The hydrogen formed was essentially constant while the yield of other gaseous products increased with increase in temperature. The liquid products, up to 300°C inclusive, increased with temperature and comprised mostly saturated normal hydrocarbons, some cyclics, 4-8% trans-olefinic hydrocarbons, and, above 300°C, 1-2% vinyl-containing products. The yield of polymers was independent of temperature.

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L 34473-65

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ACCESSION NR: AP5001890

though their molecular weight decreased with temperature increase: a greater number of methyl groups was present in the higher temperature radiolysis polymeric products. 10-20% of the polymers formed was based on unsaturated hydrocarbons having about the same number of C atoms as the initial hydrocarbon. Conversion of tetratriacontane was a combination of spontaneous molecular destruction and reactions of thermolized radicals. Ion and ion-radical reactions whose rates were temperature-independent were involved; C-C bonds were ruptured and isoradicals were formed by breaking off of the hydrogen atom. Equations were derived for the yield of lower saturated and unsaturated hydrocarbons. Examination of reactions of solutions of 10^{-1} to 10^{-6} M p-terphenyl in tetratriacontane showed that the p-terphenyl inhibited the formation of diene compounds only.

"The authors thank M. M. Kusanov, N. A. Shimanko and M. V. Shishkin for conducting the spectral analysis." Orig. art. has: 2 tables and 2 equations

ASSOCIATION: Institut neftekhimicheskogo sinteza im. A. V. Topchiyeva (Institute of Petrochemical Synthesis)

SUBMITTED: 09Jul64

ENCL: 00

SUB CODE: OC, GC

NR REF SOV: 005

OTHER: 001

Cord 2/2

L 3134-66 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/ETC/EPF(n)-2/EWG(m)/EWP(j) WH/RM

AM5020745

BOOK EXPLOITATION

UP/ 57 34 B+1

Aleksenko, YU. N.; Brodskiy, A. M., and others

21,44,55

Research on the use of organic heat-transfer agents and moderators in nuclear reactors (Issledovaniya po primeneniyu organicheskikh teplonositeley-zamedliteley v yadernykh reaktorakh), Moscow, 1964. 26 p. illus., biblio. (At head of title: Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii SSSR)

Series note: Moscow. Institut atomnoy energii. [Doklady] IAE-611

TOPIC TAGS: nuclear reactor, nuclear reactor coolant, nuclear reactor moderator, organic cooled nuclear reactor, organic moderated nuclear reactor

PURPOSE AND COVERAGE: This book is intended for professional workers in the nuclear-reactor field and other related areas. It contains a survey of the major research on the use of high-boiling organic liquids as coolants and moderators in nuclear reactors. The results of radiation-chemical, thermo-physical, corrosive, and neutron-physical research are examined, and data are given on the destructive hydrogenation used to regenerate the products of radiolysis of organic coolants. According to the results obtained, it.

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can be asserted that the organic compounds of the alkyl-substituted class or of partially hydrogenated polyphenyls as well as various mixtures with a sufficiently high content of aromatic hydrocarbons can be used quite well as coolants in the primary loop of nuclear-power plants. No personalities are mentioned. Nineteen graphs are presented in the work.

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SUB CODE: NP,

SUBMITTED: 0000064

NO REF SOV: 004

OTHER: 002

Card

BRODSKIY, A.M., doktor khim.nauk

Establishing the kinetic scheme for ethane pyrolysis. Vest. AN SSSR
35 no.10:40-45 0 '65. (MIRA 18:10)

1. Institut neftekhimicheskogo sinteza im. A.V.Topchiyeva AN SSSR.

L 1363-66 EWT(m)/EPF(c)/EWP(j)/EWA(c) RPL WW/RM

ACCESSION NR: AP5020833

UR/0020/65/163/004/0920/0923

AUTHOR: Brodskiy, A. M.; Kalinenko, R. A.; Shevel'kova, L. V.; Yampol'skiy, Yu. P.; Lavrovskiy, K. P.

TITLE: Mechanisms of the conversions of ethylene and acetylene during hydro-carbon pyrolysis

SOURCE: AN SSSR Doklady, v. 163, no. 4, 1965, 920-923

TOPIC TAGS: pyrolysis, acetylene, ethylene, temperature conversion, excited state, hydrocarbon

ABSTRACT: An explanation of the course and mechanism of acetylene conversion under ethylene pyrolysis conditions was sought in this study of pyrolysis in the 800-1000 C range of mixtures of ethylene and tagged acetylene. Acetylene conversion was determined from the distribution of radioactivity in the pyrolysis products. At the lower temperatures none of the pyrolysis products except coke was formed from acetylene, and formation of coke and methane was minimum at 900 C. Participation of acetylene in the formation of other gaseous products increased with temperature. The energy of activation is about 10 kcal/mol. It was concluded that benzene was formed equally by reactions involving no acetylene

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and reactions in which only acetylene and its conversion products took part. Traces of cyclohexane formed below 900 C disappeared at elevated temperatures, and apparently it is intermediate in the formation of untagged benzene. Very little acetylene was used to form methane and divinyl. The coke deposited at the lower temperature was primarily formed directly from the acetylene. At 950-1000 C the coke was formed as a result of the conversion of ethylene and other hydrocarbons having low specific radioactivity. The energy of activation for these reactions is about 80 kcal/mol. The acetylene added initially to the ethylene decomposed much faster than acetylene formed during the course of pyrolysis. This may be associated with the formation of the excited triplet state in acetylene but needs further investigation. Orig. art. has: 3 figures, 11 equations, and 1 table

ASSOCIATION: Institut neftekhimicheskogo sinteza im. A. V. Topchiyeva AN SSSR
(Institute of Petrochemical Synthesis AN SSSR)

SUBMITTED: 18Oct84

ENCL: 00

SUB CODE: GC

NR REF SOV: 004

OTHER: 004

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L 15193-66 EWT(m)/ENP(j)/ENA(1)/ENA(h) DIAAP RM/GS
ACC NR: AT5023437 SOURCE CODE: UR/0000/65/000/000/0113/0117

AUTHOR: Brodskiy, A. M.; Kolbanovskiy, Yu. A.; Polak, L. S. 66

ORG: none

TITLE: Energy transfer during radiolysis of hydrocarbons 19, 55-44 B+1

SOURCE: Simposium po elementarnym protsessam khimii vysokikh energiy
Moscow, 1963. Elementarnyye protsessy khimii vysokikh energiy (Elementary processes of the chemistry of high energies); trudy simpoziuma. Moscow, 1965, 113-117

TOPIC TAGS: radiation effect, excited state, electron energy, excited electron state, HYDROCARBON

ABSTRACT: The effect of inhibition (by aromatic molecules, molecules of iodine, etc.) on electron excitation energy transfer during radiolysis of hydrocarbons at low and medium temperatures was studied. For highly excited states with a relaxation time of the order of 10^{-13} - 10^{-11} ; the probability (in vacuum) of energy transfer from the excit-

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ACC NR: AT5023437

ed molecules to the molecules of the inhibitor by the dipole-dipole mechanism is

$$\omega_{II} = \frac{9\hbar}{2^3 \cdot \pi} \alpha^2 \left(1 + \alpha^2 + \frac{9}{4} \alpha^4 \right) \rho(\omega) \omega_I \omega_{II},$$

where ω_I and ω_{II} are probabilities of dipole generation by excited molecules and molecules of the inhibitor, respectively, $\rho(\omega)$ is density distribution in the ultimate state of the inhibitor molecules, α is a dimensionless parameter. In many cases, the excitation level of a chemically active molecular system, particularly ions, is below the first excitation level of most molecules in the reacting system. In the case of strong absorption by the molecules of the inhibitor, the dependence of the probability of inhibition w upon concentration is

$$w = A \rho^{1/2} \left(1 + \beta_1 \frac{(\hbar c)^3 \rho^{1/2}}{\omega^3} + \beta_2 \frac{(\hbar c)^4 \rho^{1/2}}{\omega^4} \right),$$

where β_1 and β_2 are constants depending upon the intensity of molecular interaction; their values are close to unity. The equation des-

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cribes the characteristic features of inhibition of electronic energy transfer. Orig. art. has: 2 formulas.

SUB CODE: 07/ SUBM DATE: 23Feb65/ ORIG REF: 003/ OTH REF: 001

TS
Card 3/3

L 35297-66 EWT(m)/T WE

ACC NR: AP6026822

SOURCE CODE: GE/0065/66/231/03-/0173/0182

AUTHOR: Kalinenko, Ruth Abramova (Doctor); Brodski, Anatol Moiseovitsch (Professor; Doctor); Shevelkova, Ludmila Vladimirovna (Doctor)

ORG: Institute for Petrochemical Syntheses, AN SSSR, Moscow

TITLE: Laws governing the thermal cracking of low hydrocarbons [This paper was presented at the Annual Meeting of the Chemical Society of the DDR, held in Leipzig in 1964.] 23
B

SOURCE: Zeitschrift fur physikalische Chemie, v. 231, no. 3-4, 1966, 173-182

TOPIC TAGS: hydrocarbon, chemistry technique, petrochemistry

ABSTRACT: In his lecture delivered at the 1964 general Meeting of the East German Chemical Society (Chemische Gesellschaft in der Deutschen Demokratischen Republik) in Leipzig, the author described attempts to develop a scheme for the sequence in which the various thermal cracking products form and to determine quantitatively the most important velocity constants of the individual processes and process combinations involved in the thermal cracking of low hydrocarbons. Twenty-five equations were derived and discussed. Orig. art. has: 25 formulas. [JPRS: 36,464]

SUB CODE: 07 / SUBM DATE: 16Nov64 / ORIG REF: 002 / OTH REF: 004

Card 1/1 *ddh*

BRODSKIY

А. Н. Бродский, А. В. Ашмар, В. Н. Мухоморов,
А. П. Соловьев

Образованная каллиграфическая система для измерения амплитуды малой мощности в диапазоне 0,75-1,5 см.

А. Н. Соловьевский,
В. А. Югов,
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А. Я. Дуров

Плоскостные волноводы для измерения мощности СВЧ

А. Н. Мухоморов

Оптимальные параметры радиометра

К. Л. Михайлов

О переработке амплитудных сигналов в диапазоне 3-30 МГц

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Метод калибровки в измерении амплитуды мощности в диапазоне от 10 до 20 МГц

18 минут

(с 10 до 20 часов)

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В. В. Золотухин,
В. В. Пономарев

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Н. Р. Гусев, В. Н. Мухоморов

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В. Н. Мухоморов

Измерение каллиграфической прозрачности систем с помощью СВЧ

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(с 10 до 16 часов)

А. Н. Бродский

Методы измерения амплитуды излучения в каллиграфической системе в диапазоне 0,75-1,5 см.

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report submitted for the Confidential Meeting of the Scientific Technological Society of
Radio Engineering and Electrical Communications En. A. G. Popov (VSEI), Moscow,
8-12 June, 1959

BRODSKIY, A.S.

Hydraulic pusher for tunnel driers. Ogneupory 19 no.1:39-41
'54. (MIRA 11:8)

1. Bogdanovichskiy zavod.
(Drying apparatus) (Refractories industry--Equipment and supplies)

BRODSKIY, A.S.; ROMANCHUK, D.Ya.

Use electromagnetic hydrodynamics in industry! Mat. 1
gornorud. prom. no.3:79 My-Je '64. (MIRA 17:10)

MAYZEL', Anatoliy Borisovich; BRODSKIY, A.S., dots., otv. red.;
KOVALENKO, Yu.V., red. izd-va; PAVLICHENKO, M.I., tekhn.
red.

[Choice of the anesthesia]Vybor obezbolivaniia. Rostov-na-
Donu. Izd-vo Rostovskogo univ., 1962. 183 p. (MIRA 15:9)
(ANESTHESIOLOGY)

DRUZHKOVA, A.A., inzhener; ~~BRODSKIY, A.U., inzhener.~~

Methods of controlling strip thickness in cold rolling. Stal' 16
no.1:32-36 '56. (MLRA 9:5)

1. Staleprokatnyy i provolochnokanatnyy zavod imeni Molotova.
(Rolling (Metalwork)) (Measuring instruments)

BRODSKIY, A.U.

~~Measurement errors of contact automicrometers. Zav.lab. 22 no.3:349-352~~
'56. (MLRA 10:5)

1.Staleprokatnyy i provolochno-kanatnyy zavod im. V.M. Molotova.
(Micrometer)

BRODSKIY, A.U.

Electromagnetic noncontact micrometers used for measuring the
thickness of steel straps. Bul. TSNIICM no.15:44-47 '57.
(MIRA 11:5)

1. Leningradskiy staleprokatnyy i provolochno-kanatnyy zavod.
(Magnetic measurements)

BRODSKIY, A.V.

Twenty-fifth anniversary of the Central Aeronautic Meteorological
Station. Meteor. i gidrol. no.11:56-57 N '56. (MLRA 10:1)
(Meteorology in aeronautics)

BRODSKIY, A.V.

New types of meteorological service in the Civil Air Fleet.
Meteor.i gidrol. no.11:52-53 N '62. (MIRA 15:12)

1. Moskovskiy glavnyy aviatsionny meteorologicheskiy tsentr,
Vnukovo.

(Meteorology in aeronautics)

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BRENNER, JANOS
to

#35 5245
#36 4301
#37 5246
#38 4264
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#40 4374
#41 5328
#42 5245
#43 5245

RODSKIY, A.V.

END